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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,531	03/23/2004	Thomas L. Chenevert	UM-08780	3429

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EXAMINER	
KHOLDEBARIN, IMAN K	

ART UNIT	PAPER NUMBER
3737	

MAIL DATE	DELIVERY MODE
05/15/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/807,531	CHENEVERT ET AL.	
	Examiner	Art Unit	
	I Kenneth Kholdebarin	3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/23/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 10, 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Zhang (US 6,147,492).

Re Claim 1 and 10: Zhang discloses a method and apparatus with a computer and an MRI device wherein the system receives data from the MRI device (11) and data comprises in phase and out phase echoes of sample, the system is configured to process the data received by processor (19) and generating the percent of the fat within the sample and display the result on display (24), (See Fig. 1; Col. 6, line 60-67).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 2-4 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (6,147,492).

Re Claim 2-4 and 11-13: Although Zhang fails to teach the sample under examination being abnormal tissue or lesion of liver in human abdomen but Zhang teaches that the method of his invention will show the percentage of the fat within the sample and the sample could be an organ of a human body.

Therefore in view of Zhang at the time of the invention was made it would have been obvious to one ordinary skill in the art to have liver as a sample under examination in order to identify the fat in the organ.

5. Claim 5-7 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (6,147,492) in view of Watkins (US 6,618,608).

Re claim 5-7 and 14-16: Zhang teaches the use of MRI system to create the echo and collect data to configure the fat of the sample. Zhang fails to teach the data obtained from the MRI to be low flip angle setting with 20 degree and high flip angle with setting of 70 degree.

Watkins teaches a single RF excitation pulse 110 is used to generate both echoes, preferably causing a relatively low-angle flip, e.g., between about ten and ninety degrees (10-90.degree.). Generally, the preferred flip angle for temperature imaging of water-based tissue, such as muscle, is between about twenty to thirty degrees (20-30.degree.), because of the relatively long

T.sub.1 of water-based tissue (approximately 800 milliseconds (ms)). Fat tissue, in contrast, has a relatively short T.sub.1 (approximately 300 ms), and therefore a higher flip angle, e.g., between about seventy to eighty degrees (70-80.degree.), may be preferred to provide better temperature contrast for fat tissue. Such higher flip angles, however, may cause saturation effects in water-based tissue, and therefore flip angles of between about sixty to seventy degrees (60-70.degree.) are most preferred (Col. 7, line 1-14).

Therefore in view of Watkins at the time of the invention was made it would have been obvious to use low and high flip angle in order to provide a better temperature contrast for fat tissue.

6. Claim 2-4 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (6,147,492).

Re Claim 8-9 and 17-18 Zhang discloses that the system with control and computer processing unit (19) analyze the pulse sequence.

These pulse sequence received are considered to be the data / an output of the MRI system, that in view of Watkins (US 6,618,608) the data are obtained by low or high angle flip.

Zhang teaches the steps for producing fat and water fraction by referring to four field-echo signals from each of two quadruple-echo sequence scans and Fourier transformed to the frequency domain as indicated on step 1 thought by Zhang. The effects of t1 relaxation and t2 relaxation effects can be effectively removed through process of linear regression. Accordingly in further steps Zhang teaches summation and comparison process to be carried out that reveals whether either fat or water is present, (Fig. 4C; Col. 12, line 60- Col. 13 line 60).

Therefore in view of Zhang at the time of the invention was made it would have been obvious to one ordinary skill in the art to have four field-echo signals from two echo sequence.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art made of record and not relied upon is considered pertinent to applicants disclosure. Farace discloses Method and an automatic system for obtaining water content and electric-permittivity maps from magnetic resonance images; Ma discloses Quantitative MR imaging of water and fat using a quadruple-echo sequence; Alperin discloses method of measuring intracranial pressure. Shah discloses Method and apparatus for obtaining in-vivo NMR data from a moving subject.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to I Kenneth Kholdebarin whose telephone number is 571-270-1347. The examiner can normally be reached on M-F 8 AM- 4 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Iman Kenneth Kholdebarin
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05/08/2007

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